DOCUMENT RESUME

ED 350 744 EC 301 551

AUTHOR Christmas, Oren L.
TITLE Use of Technology by Special Education Administrators.
INSTITUTION Michigan State Dept. of Education, Lansing. Bureau of Information Management.
SPONS AGENCY Michigan State Dept. of Education, Lansing. Special Education Services.
PUB DATE [92]
NOTE 14p.
PUB TYPE Reports - Evaluative/Feasibility (142) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Administrator Attitudes; Computer Assisted Instruction; Computer Literacy; *Computer Uses in Education; *Disabilities; *Educational Technology; Elementary Secondary Education; Inservice Teacher Education; Integrated Activities; *Knowledge Level; Microcomputers; Needs Assessment; Questionnaires; School Districts; State Surveys; Supervisors; Telecommunications; Training
IDENTIFIERS Michigan

ABSTRACT

This paper describes a study by Project ACCESS (Addressing Computer Concerns of Educators of Special Students) in Michigan to ascertain the existing level of knowledge and use of technology in special education. Analysis of questionnaires returned by 346 directors or supervisors of special education indicated the following findings: the majority indicated that they had integrated technology (usually microcomputers) into their educational setting; most respondents had access to microcomputers and had received some type of recent computer training; respondents had received training from friends and coworkers, intermediate school districts, local districts, and colleges; information was generally acquired through magazines/newspapers, coworkers, television, and mailed advertisements; half knew of the ACCESS' newsletter but less than half knew about Project ACCESS; and few utilized modems or accessed electronic bulletin boards. Perceived training needs were in the areas of microcomputers, computer-assisted instruction, adaptive equipment, and word processing. In general, respondents had limited knowledge of basic technology and technology uses and limited experience with technology, but believed in the importance of integrating technology into the educational setting. The questionnaire and details from an analysis of the questionnaire are appended. (DB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED350744

Use of Technology by Special Education Administrators

by

Oren L. Christmas
Education Research Consultant
Information, Research & Evaluation Services
Bureau of Information Management
Michigan Department of Education

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

T. Beck

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

EC 301551

This study was supported by the Michigan Department of Education, Special Education Services through federal funds derived from P.L.94-142. Any opinions expressed in this study do not reflect the positions or policies of the Michigan Department of Education and no endorsement is inferred.

BEST COPY AVAILABLE

MICHIGAN STATE BOARD OF EDUCATION

Dorothy Beardmore, President . . . . . Rochester
Dr. Gumecindo Salas, Vice President . . . . . East Lansing
Barbara Dumouchelle, Secretary . . . . . Grosse Ille
Marilyn F. Lundy, Treasurer . . . . . Detroit
Cherry H. Jacobus, NASBE Delegate . . . . . Grand Rapids
Dick DeVos . . . . . Grand Rapids
Barbara Roberts Mason . . . . . Lansing
Annetta Miller . . . . . Huntington Woods

Ex Officio Members

John Engler
Governor

Robert E. Schiller
Superintendent of Public Instruction

Introduction

The use of technology in special education has been a thrust of the Michigan Department of Education, Special Education Services for many years. The major vehicle that has been used to disseminate information about technology in special education has been Project ACCESS.

Project ACCESS (Addressing Computer Concerns of Educators of Special Students) is a clearinghouse for information about technology in special education. The Project ACCESS clearinghouse came into existence in 1983 and continues today through a series of state initiated project grants.

The clearinghouse has had the following responsibilities:

- maintaining an electronic bulletin board
- development and distribution of a model plan for local districts to use for technology infusion
- publication of a multiple issue technology newsletter
- conducting both instructional and administrative professional development activities pertaining to technology
- provide technical assistance to special education administrators in areas of database management, spreadsheets, wordprocessing, and other computer assisted management tasks
- identify and support educational research and evaluation activities related to technology
- support a statewide special interest group (SIG)
- provide mini-grants for special education programs in need of computer hardware
- development and implementation of a Michigan Monitoring System and a Registry Management System.

The first phase in determining the effectiveness of this project is to ascertain the existing level of knowledge and use of technology in special education.

Use of Technology by Special Education Administrators

Population and Sample

The population for this study were all the individuals who were designated as directors or supervisors of special education in the 1990-91 Special Education Services personnel database.

A random sample of 541 administrators were selected using an SPSS-X sampling routine.

Response Rate

A total of 346 (64%) usable questionnaires were returned for analysis. Three unique response patterns were identified. Early, late, and non-respondents were compared using the Mann-Whitney U-test and all possible combinations of the groups, taken two at a time. None of the groups responded significantly different from each other on the twelve variables of interest.

Kendall's Coefficient of Concordance was calculated to determine the general level of agreement among the three groups of respondents. A Chi-Square value of 1139.73 and a p-value of less than .001 indicated that these groups tended to agree with each other pertaining to specific questions on the survey instrument. Based upon the Mann-Whitney U test and the Kendall's W, all data from the three response groups were pooled for further analysis.

Validity and Reliability

The questions included in the survey instrument were designed from specific criteria developed by Special Education Services and this researcher. Content validity was established by a panel of experts knowledgeable of the use of technology in special education. Two groups of questions were used as ipsative measures of knowledge and experience. Construct validity of these two groups of questions was developed via factor analysis using principal component analysis and Varimax rotation. This procedure yielded high factor loadings within a single function for each group of questions.

The reliability of the two domains of ipsative statements was established using Cronbach's Alpha. Both the knowledge domain and the experience domain had a reliability coefficient of .97. The overall instrument reliability was calculated as .98.

Results

When asked whether or not they had integrated or used technology in the educational setting, the majority (307, 90%) of the special education administrators indicated yes. Listed in Table 1 are the types of technology for those that indicated they had integrated technology into their educational setting. The majority of the administrators utilized microcomputer technology.

TABLE 1

Types of Technology Integrated into the Educational Setting

Type	Frequency	Percent
Microcomputer	259	76.6
Speech Synthesizer	50	14.8
CD-ROM	30	8.9
Calculator	23	6.8

(Others with less than five percent include Braille to Print Units, Touch Windows, adaptive VI devices, fax, modem)

In addition to the type of technology, these individuals were asked where they received the information or training for this technology. Displayed in Table 2 is a listing of their responses. The Intermediate School District (ISD) and co-workers were the main resources used for technology use.

TABLE 2

Sources of Technology Information/Training

Type	Frequency	Percent
ISD	60	17.9
Co-worker(s)	58	17.3
College	48	14.3
Personal Reading	44	13.1
Workshops	37	11.0
Commercial Firm	35	10.4
LEA	33	9.9
Computer Tutorials	32	9.6
Software Documentation	24	7.2

(Others with less than five percent include Software Documentation, Access, LLRC, Friend, OJT, REMC, Conferences, Civic/Faternal Organizations)

Three hundred and ten (90.6%) of the respondents indicated that they had access to a microcomputer. When asked whether they had received microcomputer training over the past five years 254 (73.6%) indicated yes. The major sources of training for those that answered yes are listed in Table 3. The ISD was the major source of training followed in order by the Local Education Agency (LEA), and friend and college.

TABLE 3

Sources of Microcomputer Training

Type	Frequency	Percent*
ISD	116	66.3
LEA	96	27.9
Friend	80	23.3
College	63	18.3
Commercial Firm	51	20.2
ACCESS	26	7.6
Adult Education	25	7.3
MDE	15	4.4
SIG	12	3.5
Community College	7	2.0

*Percentages do not add to 100% due to multiple responses.

Closely associated with microcomputer training is whether or not the respondent had received training on the use of a modem. Sixty one (17.7%) of the respondents indicated that they had received this type of training. The major sources of training for those that answered yes were the LEA, ISD, college and friend (see Table 4).

TABLE 4

Sources of Modem Training

Type	Frequency	Percent
LEA	16	4.6
ISD	14	4.1
College	13	3.8
Friend	12	3.5
Commercial Firm	8	2.3
ACCESS	4	1.2

When asked what sources they use to find out about technology (see Table 5) the majority of the respondents indicated the use of magazines and newspapers.

TABLE 5

Sources of Technology Information

Type	Frequency	Percent
Magazines/Newspapers	219	64.4
Co-Worker	99	29.1
Television	82	24.1
Mailed Advertisements	51	15.0
Friends	35	10.3
Radio	32	9.4
Journals	28	8.2
Newsletters/Bulletins	25	7.4
Conferences	25	7.4
Workshops/Inservices	24	7.1
Project ACCESS	23	6.8
Commercial Firms	20	5.9
ISD	20	5.9

(Others with less than five percent include ISDs, LEAs, colleges, LLRC, Manuals, SIGs, professional organizations, books)

When asked whether or not they were aware of an electronic bulletin board system that is specifically for special educators use, 82 (23.8%) indicated yes. The largest portion of the respondents indicated that the bulletin board service was maintained by ISDs and Project ACCESS (see Table 6).

TABLE 6

Electronic Bulletin Board Sponsors

Type	Frequency	Percent
ISD	14	4.1
ACCESS	13	3.8

(Others with less than five percent include APPLE, colleges, CEC, MACUL, REMC, PIAM, Special Net)

Seventy eight (23%) of the respondents indicated that they were aware of special education special interest groups (SIGs). For those 78 that were aware of a SIG, 11 (3.2%) were members. The various sponsors of these SIGs are listed in Table 7.

BEST COPY AVAILABLE

TABLE 7

Special Education Special Interest Group Sponsors

Type	Frequency	Percent
MACUL	8	2.4
ACCESS	6	1.8
ISD	5	1.5

(Others with less than five percent include CEC, PAM, MDE, Special-Net, professional organizations, LEA.)

These individuals also felt that membership was moderately useful to them (see Table 8).

TABLE 8

Perceptions of Special Education Personnel Toward the Usefulness of Special Interest Groups

Type	Frequency	Percent
Not Useful	1	2.3
Barely Useful	1	2.3
Slightly Useful	5	11.4
Somewhat Useful	11	25.0
Moderately Useful	11	25.0
Quite Useful	10	22.7
Very Useful	5	11.4
Total	44	100.0

Summary Statistics: X=4.8, Mdn=5.0, Md=4.0, sd=1.4

When asked if technology has helped to reduce any of their students' barriers to learning, 243 (76.7%) indicated yes. In addition, the majority (208, 66.9%) of the special education personnel felt that technology helped to minimize their students' disabilities.

The majority of the respondents (175, 51.3%) were aware of the ACCESS newsletter and 157 (46.2%) were aware of Project Access.

The special education personnel indicated that they would like to receive some training pertaining to microcomputers, computer assisted instruction, adaptive equipment, and wordprocessing. A complete listing of the desired training areas are located in Table 9.

BEST COPY AVAILABLE

TABLE 9

Training Needs Identified by Special Education Personnel

Type	Frequency	Percent
Microcomputers	55	16.8
Available Software	53	16.2
Program Integration	41	12.5
Wordprocessing	24	7.3

(Others with less than five percent include reading, speech synthesizers, CD-ROM, fund sources, databases, programming, technology update, merging data with reports, CAI, CMI, adaptive equipment, modem, telecommunications)

Knowledge of basic technology, Experience, Knowledge of using technology, Importance and Integration

There were three attitudinal domains that measured the level of knowledge of basic technology and its use, experience, and integration of technology.

The knowledge of basic technology and use domain consisted of twenty statements and measured how knowledgeable the respondent was of hardware and related components. The mean score of 65.3 (sd=24.8), median of 62 and a modes of 39, 46, and 65 are all below the midpoint value of 80 and indicate that the respondents had a limited amount of knowledge.

The experience domain (K=8) had a mean score of 20.3 (sd=11.46), a median score of 18 and a mode of 8. All these measures are below the midpoint value of 32 and indicated that the respondents had limited experience using technology.

The final domain of interest pertains to the integration of technology into the special education curriculum (K=4). A mean of 23.4 (sd=4.73), a median of 24 and a modal score of 28 are all above the midpoint value of 16 indicating the respondents agreed with the need for integrating technology into the educational setting.

Located in Appendix A are the items that comprised the domains. These items are listed in descending order, irrespective of domain with their corresponding descriptive statistics. It should be noted that test-retest item reliability was not conducted.

BEST COPY AVAILABLE

Summary

The majority of the respondents indicated that they had integrated technology into their educational setting. The major items integrated were microcomputers. Most of the respondents had access to microcomputers and had received some type of recent training concerning computers. The respondents received training from four general sources; friends and co-workers, ISDs, local districts, and colleges.

Information was generally acquired through magazines/newspapers, co-workers, television and mailed advertisements. Half of the administrators were aware of the ACCESS newsletter and less than half knew about Project Access. Few of the respondents utilized modems or accessed electronic bulletin boards. The respondents felt that technology had both helped reduce barriers and decreased their students' disabilities.

The perceived training needs were microcomputers, computer assisted instruction, adaptive equipment and wordprocessing. As a general rule, the respondents had limited knowledge of basic technology, technology uses, and experience with technology. These individuals were in general agreement that technology is important and that it should be integrated into the educational setting.

Appendix A

Technology Competencies

QUESTION	$\bar{X}$	SD	MDN	MD
Performing a cost/benefit analysis of a technology project which includes tangible and intangible costs.	2.046	1.503	1.000	1.000
Using telecommunications to access a network.	2.104	1.668	1.000	1.000
Potential funding sources for special education technologies.	2.231	1.505	2.000	1.000
Formulating and implementing a policy for ethical use of technology.	2.262	1.721	2.000	1.000
Promoting and conducting professional development in the uses of technology.	2.473	1.747	2.000	1.000
Analyzing and addressing equity issues regarding access to technology (i.e., sex, grade levels, ability levels).	2.473	1.847	2.000	1.000
Components of an effective plan to implement and manage technology.	2.562	1.607	2.000	1.000
Components that comprise an appropriate evaluation of hardware, software, and adaptive devices for both instructional and administrative uses.	2.602	1.563	2.000	1.000
Creating, implementing and evaluating a technology plan which addresses both instructional and management applications.	2.671	1.739	2.000	1.000
Being a resource to instructional staff in the selection, use and evaluation of appropriate hardware and software.	2.680	1.876	2.000	1.000
Appropriate uses of telecommunications and networks.	2.705	1.905	2.000	1.000
Resources available for information about and assistance with the uses of technology with the handicapped.	2.720	1.562	2.000	2.000

Note: Scores could range from 1 (None) to 7 (Extensive). Midpoint value=4.

QUESTION	$\bar{X}$	SD	MDN	MD
Selecting management software for specific administrative uses.	2.732	1.848	2.000	1.000
Research on uses of technology with the handicapped in special education.	2.735	1.522	2.000	2.000
The sources of external evaluations of technological devices.	2.795	1.709	2.000	2.000
Implications that FERPA, copyright laws and licensing have on the implementation of applications within the school setting.	2.853	1.873	2.000	1.000
Appropriate uses of emerging technologies (such as computer assisted videodisc instruction - CAVI).	2.853	2.138	2.000	1.000
Participating in the selection of technological devices based on individual needs.	2.870	1.679	3.000	1.000
Resources for professional development in the use of technology.	2.934	1.637	3.000	3.000
Appropriate uses of types of computer assisted instruction - CAI.	3.112	1.874	3.000	1.000
Using application software to complete management tasks.	3.173	1.873	3.000	1.000
Ways of integrating computers and other technology into the curriculum.	3.503	1.492	3.000	4.000
The issues, concerns and implications of emerging technologies.	3.605	1.612	4.000	4.000
Appropriate uses of types of computer managed instruction - CMI (such as IEP and teacher management systems).	3.650	2.692	3.000	1.000
Appropriate uses of adaptive devices.	3.841	3.012	3.000	1.000
The component parts, functions and appropriate care of a microcomputer.	3.870	1.672	4.000	4.000
Microcomputer and technology terms.	4.000	1.534	4.000	4.000

Note: Scores could range from 1 (None) to 7 (Extensive). Midpoint value=4.

QUESTION	$\bar{X}$	SD	MDN	MD
Appropriate uses of application software (such as word processing, spreadsheets, data base management).	4.009	1.819	4.000	4.000
The general uses for technology in education to store and manipulate data.	4.089	1.582	4.000	4.000
Basic operations of computers.	4.568	1.483	5.000	4.000
Is the integration of technology into the educational system/curriculum cost effective.	5.328	2.017	5.000	4.000
Evaluating technology prior to purchase.	5.762	1.960	6.000	7.000
Is there a need for students with disabilities to understand and use technology.	6.127	1.212	7.000	7.000
Do we need to integrate technology into the curriculum for students with disabilities?	6.228	1.181	7.000	7.000

Note: Scores could range from 1 (None) to 7 (Extensive). Midpoint value=4.